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WAR DEPARTMENT TECHNICAL BULLETIN

CLEANING INTERIORS OF COMPRESSED GAS CYLINDERS, TANKS, AND ACCESSORIES

War Department, Washington 25, D. C., 17 October 1944

1. NEED FOR CLEANING. *a.* Highly compressed air may cause an explosion if allowed to come in contact with even small quantities of oil, grease, flame thrower fuel, gasoline, or other solvents. (See AR 850-60, "Compressed Gas Cylinders; Safe Handling, Storing, Shipping, Using.")

b. Under certain circumstances, it is possible for fuels used in flame throwers to work back from the comparatively low-pressure fuel tanks into the high-pressure cylinder or tank of a flame thrower, or into high-pressure cylinders used to charge the flame thrower with compressed air. For example, should fuel get into a flame thrower pressure cylinder, residual pressure in flame thrower pressure cylinder may exceed pressure in commercial cylinder, resulting in fuel being forced into commercial cylinder. If this occurs, it is necessary to clean interior of cylinders, high-pressure lines, valves, or other affected high-pressure parts. Never use gasoline to clean these parts.

2. MATERIALS REQUIRED. The following materials are used:

a. Trisodium phosphate (*phosphate cleaner*). This item is a standard cleaning material which may be procured from the Ordnance Department. It is nonflammable, has no objectionable odor, may be used in hot or cold water solution (hot water is somewhat quicker), and is not injurious to the skin when used in the recommended solutions (pars. 3 and 5).

b. Hot or cold water.

c. Low-pressure steam, if available.

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3. PREMINARY PROCEDURE. Proceed as follows: *a.* Release pressure in cylinder or tank.

b. Unscrew valve and other connections.

c. Stand tank or cylinder on end.

d. Fill tank or cylinder with water to overflowing, with water hose at bottom of tank or cylinder to assure maximum agitation. This causes sediments and sludge to be carried upward and to be discharged by overflowing.

e. When overflow runs clear, drain container.

f. Wash parts which need cleaning, such as valve or other connections, in water.

g. Refill tank or cylinder with a solution containing 6 ounces of trisodium phosphate (phosphate cleaner) to each gallon of water. Immerse other parts to be cleaned, such as valve or other connections, in a tray containing the same solution.

4. USE OF STEAM. If low pressure steam is available, introduce steam into the phosphate cleaner solution (par. 3) through a hose or pipe. Continue use of steam until no appreciable amount of volatile liquid, scum, or sludge appears at top of container. Pour out solution and rinse clean containers and parts thoroughly in clear water.

5. PROCEDURE WITHOUT STEAM. If steam is not available, allow trisodium phosphate solution to stand in cylinders or tanks until the interiors are clean. The period of time is determined by experience; in some cases it may need to stay in cylinder overnight. Use same procedure with valves and other small parts. The strength of the solution may need to be changed to give the best results. It may be varied to as high as 8 ounces of trisodium phosphate to 1 gallon of water. When containers and parts are clean, pour out solution and rinse in clear water. Allow little moisture as possible to remain in the containers or on the parts.

6. REASSEMBLING TANKS AND CYLINDERS. Great care must be taken when replacing valves and connections on containers to avoid damaging threads. Even the slightest thread nick can cause a leak from a high pressure container.

a. Be sure all threads are clean.

b. Apply noncombustible luting compound, such as shredded asbestos moistened with sodium silicate solution (water glass), flake graphite, or litharge and glycerine. Litharge and glycerine mixture has a disadvantage; it hardens as it sets to such an extent that the joint is difficult to unthread. Do not use white lead or other oily luting compound.

c. Use wrench to tighten valves and connections.

d. Recharge container to full pressure.

e. Test tank or cylinder by immersing in water for at least 5 minutes. If bubbles occur, repeat steps *a* through *e*, above. If leaks persist, replace parts.

[AG 300.5 (11 Oct 44).]

BY ORDER OF THE SECRETARY OF WAR:

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Chief of Staff.

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The Adjutant General.

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For explanation of symbols, see FM 21–6.

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